

May 4, 2018

TO: Senator Michael Rodrigues, CO-Chair Cranberry Oversight Committee  
Representative William Straus, CO-Chair Cranberry Oversight Committee

FROM: John Hoey, Vice Chancellor for Public Affairs, UMass Dartmouth

RE: Update on the Cranberry Health Research Center Update

First off, thank you both for your ongoing support of UMass Dartmouth and its Cranberry Health Research Center. The following is a brief update on the work of the Center, made possible by the Commonwealth's investment. The information below is provided by Center Director and Professor of Chemistry Kathy Neto.

In summary, the \$100,000 in state funding was critical to the university securing \$150,000 from a private foundation for Center research. The team's goal is to leverage this public-private investment into proof that will lead to major federal funding.

Another exciting development of this initiative is that more faculty are engaging in the work. Below you will see that professors from biology and bioengineering are now involved.

This is an exciting project, rooted in an historic industry of the Commonwealth, with great economic and health potential. Thank you again.

### **Cranberry Health Research Center Update**

The Legislature appropriated \$100,000 in FY18 for Cranberry Health Research Center activity via an earmark within the Public Health budget. The goal of the initiative is to demonstrate the potential disease-fighting capabilities of cranberries, which would then position the Center for significant federal research investment. If proven, this capability would significantly expand the use of cranberry-based products.

The Center was notified in February of the availability of the \$100,000 to be spent by June 30, 2018. To advance the aims of the Colon Health Research Initiative and provide preliminary data for federal grant applications, Principle Investigator and Center Director Kathy Neto (Chemistry) and Co-PIs Vanni Bucci (Biology), Milana Vasudev (Bioengineering) and Maolin Guo (Chemistry) proposed to use this year's state funding allocation to:

- Develop and begin to implement in vitro and in vivo models of the human gut microbiome at UMassD
- Study their response to treatment with cranberry polyphenols and encapsulated cranberry bioactives prepared and developed at UMassD.

- Upgrade and maintain instrumentation in support of cranberry-health research initiatives.

The state funding played a key role in attracting private investment in this initiative. Earlier this year the Center received a \$150,000 gift from Albert Charitable Trust in 2017 to establish the Colon Health Research Initiative. Trustee Gene Pranzo visited UMass Dartmouth and met the research team in October.

The state and private funding will be combined to support a variety of projects on bioactive cranberry compounds and their impacts on the gut. We have authorized the purchase of an Illumina iSEQ DNA sequencer to carry out the in-house sequencing of gut microbial communities and their response to cranberry treatment.

Additional funding will help support an upgrade to our new NSF-MRI funded scanning electron microscope to be used for imaging of encapsulated cranberry polyphenols and support for the laser confocal microscope facility used by several of the researchers. Funds will also be used for upgrades to our LC-MS facility for analysis of cranberry metabolites that are likely to influence gut inflammation.

To begin the in vitro microbiome work, a fermentation unit was repurposed and students will be hired to work on the gut microbiome models this summer.

An IUCAC protocol for implementing the mouse models of gut inflammation at UMass Dartmouth is now in development.

It is hoped that establishing these in-house models for evaluating the cranberry will provide preliminary data on cranberry-gut interactions, making the Center team more competitive for funding from the National Institutes of Health and private foundations supporting gut health research.